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BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

Petition Of The Cellular Telecommunications)
And Internet Association For A Rulemaking)
To Establish Fair Location Information Practices)

WT Docket No. 01-72

COMMENTS OF TRUEPOSITION, INC.

Philip L. Verveer
David M. Don
Kelly N. McCollian*

WILLKIE FARR & GALLAGHER

Three Lafayette Centre
1155 21st Street, N.W.
Suite 600
Washington, D.C. 20036
(202) 328-8000

ATTORNEYS FOR TRUEPOSITION, INC.

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TruePosition, Inc., a vendor of wireless location technology and systems, hereby submits its Comments in the above-captioned proceeding.¹

I. INTRODUCTION AND SUMMARY

The Commission's present inquiry and the CTIA petition are the direct result of a confluence of events that were not foreseen when the Commission adopted its CMRS E911 requirements in 1996.² In addition to the E911 requirements that encouraged the development of technologies that identify the location of a mobile caller to within 100 meters and better, the proliferation of mobile wireless competition, advances in digital services, and the explosive development of the Internet have combined to enable what is commonly called "mobile commerce." Mobile commerce is likely to result in seismic shifts in the manner in which

¹ Wireless Telecommunications Bureau Seeks Comment on Request to Commence Rulemaking to Establish Fair Location Information Practices, WT Docket no. 01-72, *Public Notice*, DA 01-696 (rel. Mar. 16, 2001).

² See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 18676 (1996).

consumers use their mobile phones and conduct transactions. The emergence of subscriber location as an important enabler of commercial activities raises the issues addressed in the petition.

TruePosition takes this opportunity to discuss with the Commission the significant efforts it has assumed to ensure that the privacy of wireless phone users will be properly protected as location-based services are offered to consumers in the near future. TruePosition has created a network-based location solution with privacy in mind at every stage of development.³ It has designed a system that ensures that location-based information is used only with subscriber consent: either for delivery of location information to PSAPs when the caller dials 911 or, in other circumstances, where explicit prior consent of the wireless user is granted.

II. TRUEPOSITION'S TECHNOLOGY IS CAPABLE OF LOCATING A WIRELESS HANDSET ONLY DURING THOSE TIMES WHEN THE HANDSET IS TRANSMITTING A RADIO SIGNAL.

TruePosition has worked with CMRS providers to develop technologies that will promote public safety by computing the location of mobile callers during emergencies and transmitting that information to PSAPs. TruePosition's network-based solution for wireless E911 is capable of locating a wireless caller well within the Commission's 100 meter requirement and is capable of doing so for almost all wireless technologies.⁴

³ See generally Jerry Berman & Deirdre Mulligan, Privacy in the Digital Age: Work in Progress, 23 Nova L. Rev. 549, 582 (1999) ("Technologies must be a central part of our privacy protection framework, for they can provide protection . . . where law or self-regulation may fail us.").

⁴ TruePosition has commercial systems available for all wireless mobile technologies, except iDEN. TruePosition can today provide solutions to carriers utilizing AMPS, TDMA, and CDMA, and soon will be able to supply GSM technologies in all areas of the nation, both urban and rural. TruePosition has successfully tested its system in one of the most difficult environments in the world – Manhattan, NY.

The Commission's E911 regulations mandate emergency use of subscriber location, but it is clear that commercial use of location technology will be critical to fostering the rapid deployment of location-based technologies by CMRS carriers. Location technologies deployed in wireless networks will offer consumers unrivaled convenience and create efficiencies that will be indispensable in commercial settings. For instance, the addition of location specific information will allow traffic, news, directory assistance, and commercial applications to provide presently unavailable personalization and convenience for mobile consumers. Location information will also be used by delivery, service, and transportation companies to better manage fleets and packages -- leading to greater operating efficiencies that will benefit consumers through faster provision of service and reduced charges.

TruePosition offers a complete location solution to wireless carriers. Its systems are capable of handling everything from locating phones to managing and distributing location data to either the PSAP or the application service provider (a third party offering mobile commerce services directly to the user). Typically, the carrier will operate and manage the system that TruePosition provides and will be responsible for making the judgments concerning the privacy features described below. It is possible, however, that some carriers will want TruePosition to play a more active role in managing the operation of the location system. In either environment, the TruePosition system is designed to allow carriers to promote public safety and to provide only those services which consumers have expressly requested.

TruePosition's location solutions utilize both Time Difference of Arrival (TDoA) and Angle of Arrival (AoA) technology. These technologies rely upon the radiowaves sent from a

user's handset to triangulate a user's location.⁵ To be clear, the TruePosition system only works when a handset is sending a signal, i.e. during a transmission with a mobile base station, whether it is a voice call, an Internet transmission, or a Short Message. The system does not constantly generate location information nor are carriers expected to constantly track their subscribers. In addition, under appropriate circumstances, the TruePosition system will monitor the carrier's control channels and can make use of control channel messages to locate a handset when the network is setting up a voice or data call, or exchanging messages that manage the activities of the handset as it moves through the wireless network. Appropriate circumstances include situations when the user dials 911, the user invokes an active location based service,⁶ or the user has subscribed to a passive location service.⁷ In all cases, the location information is utilized

⁵ Any device that transmits a radio signal can be located. Of course, mobile handsets are sophisticated radio transmitters.

⁶ The term "active" location service is used to describe a class of services that respond to a user's express action. That is, the user engages a service for which location information is necessary. Active mechanisms can be created for all air interfaces and work when a handset makes a transmission, such as a call or Short Message. For example, under the AMPS air interface, the TruePosition system will monitor the carrier's FSK control channels for a handset's "origination message." The "origination message" informs the wireless network to place a call and contains the dialed digits of the call to be placed. By using the origination message to generate a 100-meter accurate location, an "active" service can be constructed so that whenever a specific dial-digit sequence is entered (like "*GAS" or "*AAA") the location is generated, and forwarded with consent to the service provider.

⁷ The term "passive" location service is used to describe a class of services where users have pre-subscribed to have their location calculated on periodic basis for the purpose of receiving services such as E-coupons. Passive mechanisms can be created for all air interfaces and work when a handset is not in use, but the power is on. For example, under the AMPS air interfaces, the TruePosition system will monitor the carrier's FSK control channels for a handset's "registration cycle." The "registration cycle" is a process by which a user's handset periodically (typically every 15-30 minutes) "registers" with the carrier's network by sending a signal along the control channel informing the network of the user's general location. By using the registration message to generate a 100-meter accurate location, a "passive" service can be constructed to check if a preregistered point

only if the subscriber has consented to having the location information distributed to the application service provider. No location records are ever created for calls which do not directly involve an active or passive location service (e.g., calls to an individual).

III. TRUEPOSITION HAS DEVELOPED BOTH TECHNOLOGIES AND POLICIES THAT ARE DESIGNED TO PROTECT THE PRIVACY OF WIRELESS USERS.

A. TruePosition Has Built-in Privacy Protection Into Its Network Architecture.

Recognizing that a caller's whereabouts and movements can comprise highly sensitive information, TruePosition has built into its system several technological protections that limit the dissemination of location information only to authorized parties. Through an integrated platform of hardware, software, and services that calculate, manage, and securely distribute location information, TruePosition's technology enables carriers to guarantee that a handset location is passed to an external application only when subscriber consent has been given. Further, TruePosition technology enables carriers to guarantee that a handset location is actually generated only when the subscriber involves a location service. The system comprises four primary layers: (1) the Wireless Location Platform; (2) the Location Transfer Point; (3) the Location Control Point; and (4) Location Service Nodes.⁸

The Wireless Location Platform is the part of the system that generates a handset's location when tasked. It is deployed throughout a carrier's network at the cell sites and determines a handset's geographic position by collecting and processing a variety of location data. Specifically, when a user invokes a location service, either passively or actively, which results in a signal transmission from the handset, multiple Signal Collection Systems gather

of interest (like a coffee shop) is near to the user. If so, the remainder of the service is invoked, and an E-coupon may be sent to the end user.

⁸ See Attachment.

information from nearby base stations. The data are then transmitted to a Location Processor that computes the position using TDoA and AoA algorithms. Once the location is calculated, that information is passed directly to the PSAP if it is a 911 call, or to the location distribution network if it is not.

The location distribution network is the part of the TruePosition system where location and mobile commerce come together. A user's location information first arrives at the Location Transfer Point, which serves as a router for the location information. This location information is only generated in the case of a user invoking an active location service (like "*GAS") or if he or she is subscribed to a passive location service (like E-Coupon). Thus, the system's security and privacy protections are initiated in the Wireless Location Platform, continue through the Location Transfer Point and are integrated with further measures found in the final two layers: the Location Control Point and the Location Service Node.

The Location Control Point is akin to a centralized database that contains security, authentication, and profiling modules that control access to the location data. It is a user controlled security and delivery system where subscribers interface with the network to authorize selected services, and where location-based application service providers are enabled to obtain a user's location information when authorized. Note, however, that the location data are not stored in the Location Control Point, only subscriber and service profile information is stored here. This is the part of the system where information from customers and location-based service providers agree to exchange location records with consent.

The fourth and final layer of the TruePosition system is the Location Service Node. It is at this point that the TruePosition system integrates the wireless carrier's network to the Internet and application service providers. Application service providers connect to the system through

separate, independent Location Service Nodes, allowing only that service provider to obtain location data of a particular user when it is authorized to do so by the user. Only location records are delivered to the application service provider, not the user's identity or profile information. Nor can any single application provider have access to other application records for the user. Finally, application providers have no access to any information stored in the carrier database such as subscriber billing or profile information.

In addition to creating a strict prior approval process, wireless callers have an additional measure of security through TruePosition's *55 feature. With this feature, a user dials *55 once and thereafter no location services, either passive or active, are performed -- even if the caller has previously registered for mobile commerce services. Importantly, the feature is designed so as to not affect the transmission of location information to PSAPs during emergencies.

B. TruePosition Is Committed To Protecting The Location Information Of Wireless Users.

TruePosition is committed to ensuring that the privacy of all individuals is guarded vigilantly and protected. Outside of emergency services, the TruePosition system is designed to ensure that customers control the distribution of their location information. The following principles are the bedrock of TruePosition's privacy policy:⁹

- Location information is provided only to the services to which the user has previously subscribed;
- No location information is dispensed for commercial purposes absent customer consent;
- Wireless users can disable the location function at any time;
- TruePosition does not use or distribute an individual's location information for marketing purposes;

⁹ See TruePosition Privacy Statement, http://www.trueposition.com/sol_priv.html.

- Necessary network and software level security will be built-in to protect the system from intrusion.

The TruePosition system as described above realizes these principles while promoting public safety. It immediately provides location information to PSAPs during 911 calls while providing wireless users with the affirmative ability to control whether they wish to participate in mobile commerce. Moreover, the system protects users' location privacy whether they participate in mobile commerce or not. In each layer of the system, the location of the user is highly protected. Only when the application service provider has the authority granted to it by the user who has opted-in for the service may it access the location information of the user.¹⁰ In all other instances, the user's location information is completely discarded.¹¹

IV. THE COMMUNICATIONS INDUSTRY HAS A LONG HISTORY OF PROTECTING THE PRIVACY OF USERS AND LOCATION INFORMATION WILL LIKELY BE INCLUDED IN THOSE PROTECTIONS.

As the Commission considers whether to regulate the burgeoning location-based services industry, it should also consider that there are existing privacy protections, in the form of company privacy policies, societal norms and market demands, that are already firmly embedded in telecommunications industry culture. Specifically, as the telephone industry has grown and

¹⁰ Location records are not stored in the system unless the service to which the user has subscribed has a storage requirement. For example, a service that suggests ways of improving a commuter's driving patterns may store that user's route to work for several days and then offer alternative routes.

¹¹ This discussion does not address the ability of entities to obtain location information when lawfully authorized either by a court order or by statute. In such instances, the carrier likely has procedures to comply with such requests in a lawful manner. *See Communications Assistance for Law Enforcement Act*, CC Docket No. 97-213, *Report and Order*, 14 FCC Rcd 4151 (1999); *United States Telecom Assoc. v. FCC*, 227 F.3d 450, 463-64 (D.C. Cir. 2000) (permitting law enforcement officers to obtain a users antenna tower location so long as their authority consists of "something more than a pen-register order.") (citing *id.*).

new technologies have developed over the last century, telephone companies have also developed policies that have proven successful in protecting consumers' privacy. These policies have mirrored the demands of societal norms and the market, thus ensuring that, even absent specific government regulation, social expectations about telecommunications privacy are met.

There is a long history in the telephone industry of protecting consumers' privacy through technological safeguards. For instance, the introduction of new technologies that allowed telephone companies to route and complete calls more quickly and efficiently also provided greater privacy for users of the telephone network.¹² One of the earliest examples of such privacy enhancing technology was implemented decades ago, when technology was first developed to allow customers to make calls from private lines rather than the traditional party lines; customers and the telephone companies immediately embraced and supported the increased privacy associated with this new technology.¹³ As a result of changes in technology, contracts between telephone companies and customers began to include provisions to ensure customers' privacy, such as promises that wires would not be tapped, and, later, that customers' telephone numbers would not be listed in directories or given out to users of directory assistance.¹⁴ Since then, many new technologies have been made available to the public that

¹² For example, when AT&T changed its switching operations from manual to automated technology, the third party operator was eliminated. This produced the technological side effect of anonymity for the calling party, which became the standard for the nation's telephone system. See Bell Telephone Laboratories, *A History Of Engineering And Science In The Bell System: The Early Years, 1875-1925* at 548-49 (M.D. Fagen ed., 1975).

¹³ Calls made on private telephone lines cannot be intercepted without the consent of at least one party, or a warrant to wiretap the line. See 18 U.S.C. § 2511(2); 47 U.S.C. § 605.

¹⁴ See Lawrence Lessig, *The Architecture of Privacy*, 1 Vand. J. Ent. L. & Prac. 56, 59 (1999); see also Glenn Chatmas Smith, *We've Got Your Number! (Is It Constitutional To*

have also created new potential for invading the privacy of telephone customers.¹⁵ Apart from technology, telephone companies have established methods to maintain the privacy of network users. Over time, they have developed internal policies and procedures to protect consumer information traditionally considered private, such as the content of conversations, dialing patterns, and telephone numbers.

These societal norms have influenced the telephone companies to ensure that any private, personal data that they may have access to or collect in the course of standard business is not readily available to the public at large. In fact, societal norms are often just as effective as laws and regulations at protecting privacy.¹⁶ Over the course of the development of new technologies, these norms have become embedded in the policies and practices of the telephone companies,

Give It Out?): Caller Identification Technology And the Right to Informational Privacy, 37 UCLA L. Rev. 145, 200 n.261 (1989) (explaining that subscribers receive from the telephone company “a pledge of confidentiality -- backed by contractual trappings” to keep their telephone numbers unpublished when the subscriber requests and pays for this service). Additionally, most local telephone companies have provisions in their tariffs that prohibit the “use of the service in such a manner as to interfere unreasonably with the use of the service by one or more other [c]ustomers,” and the Commission has identified these tariff provisions as a sufficient solution to the problem of “improper or abusive” telemarketing solicitations. Mark S. Nadel, *Rings of Privacy: Unsolicited Telephone Calls and the Right of Privacy*, 4 Yale J. on Reg. 99, 107 (1986).

¹⁵ For instance, improvements in switching technologies led to the development of the caller ID service. This service, while popular, also raised concerns about protecting the privacy of a user’s telephone number. To address this, call blocking features were added to the network for the specific purpose of protecting a caller’s privacy. Similarly, TruePosition has implemented the *55 feature, enabling callers to control whether they want their location information computed for mobile commerce.

¹⁶ See Lessig, *supra*, note 14, at 62 (noting that the “law is one protection for privacy, but it is not the only protection, or the most important. Norms protect privacy as well. ... And among corporations, norms restrict the kind of uses that these companies will make of the data they collect.”).

becoming the self-regulating standards by which these companies deal with the private data of their customers, rather than more abstract demands imposed by law.¹⁷

Moreover, as competition in all segments of the telecommunications industry continues to grow, providers' ability to offer privacy protections presents yet another area in which carriers must compete for customers. The competitive market dictates that those individuals concerned with the protection of their personal data will obtain service from the carrier that provides the best privacy protection. In order to attract and keep customers, companies will be required to continue to develop and use internal policies that will sufficiently limit access to the private information of customers. As explained above, TruePosition has developed a system to allow carriers to easily do so.

The application of market principles to privacy is already being played out in the Internet industry. Given the ever increasing consumer concerns over privacy protection on the Internet,

many companies are actively competing for customers by promoting their privacy policies and practices. If enough consumers demand better privacy protection and back up that demand, if necessary, by withdrawing their patronage, virtually all competitive industry sectors are certain to respond to that market demand. In fact, consumer inquiries about, and response to, corporate privacy policies are an excellent measure of how much the society really values privacy.¹⁸

¹⁷ Id. at 64 (noting that changing the laws is not the only appropriate response to concerns over protecting consumers privacy. "There are other responses beyond the law -- the response of norms, the market, and architecture.").

¹⁸ Fred H. Cate, *Principles on Internet Privacy*, 32 Conn. L. Rev. 877, 890 (2000).

The competitive wireless communications industry will likely respond to consumer privacy demands for location information in a similar manner. Thus, in addition to the customs of the industry, the market presents another means of privacy protection.¹⁹

In addition to the customs found in the telecommunications industry and the demands of a competitive market, Congress and the Commission have created additional privacy protections by regulating a carrier's use of Customer Proprietary Network Information ("CPNI").²⁰ In 1999, Congress amended section 222 of the Communications Act of 1934 to include wireless location information in its CPNI requirements.²¹ Specifically, section 222 was amended to permit carriers to make wireless location information available in emergency situations to appropriate authorities or to a user's legal guardian or family.²² Congress further provided, however, that

without the express prior authorization of the customer, a customer shall not be considered to have approved the use or disclosure of or access to (1) call location information concerning the user of a [CMRS service]; or (2) automatic crash notification information to any person other than for use in the operation of an automatic crash notification system.²³

As described above, TruePosition has designed a system that enables a carrier to comply with both the letter and the spirit of the section 222 amendments. First, the system rapidly discloses location information to the appropriate authorities in emergency situations to "enhance

¹⁹ Lessig, supra, note 14, at 62 (noting that "[r]eputation in the market is affected by the use corporations make of privacy data, and in some cases, firms can offer more expensive services with a greater promise of privacy protection.").

²⁰ See 47 U.S.C. § 222.

²¹ Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 113 Stat. 1286 (1999).

²² 47 U.S.C. § 222(d)(4).

²³ 47 U.S.C. § 222(f) (emphasis added).

the ability of emergency service personnel to locate citizens using a wireless phone to call for assistance.”²⁴ Second, the TruePosition network architecture requires a customer’s express prior consent to participate in any mobile commerce applications.

V. CONCLUSION

The privacy norms and standards that are now embedded in the policies of traditional telephone companies have developed alongside modern telephone services and technologies, and likely will be extended to emerging technologies such as wireless location-based services -- the Commission must not “look at wireless telephone systems as distinct from wireline systems.”²⁵ Given the “increasing use of wireless communications services, the seamless integration of wireless and wireline networks, and the importance of wireless data links,” societal norms and the competitive market demand that telecommunications carriers extend traditional privacy protections to these new wireless technologies.²⁶ As the wireless and wireline industries continue to provide new services that rely on the integration of their networks, consumers will demand the same privacy protections that have been available for decades. Thus, the communications industry’s established internal system of privacy self-regulation, combined with

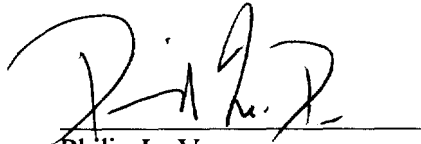
²⁴ S. Rep. No. 106-138, at 8 (1999).

²⁵ James X. Dempsey, *Communications Privacy in the Digital Age: Revitalizing the Federal Wiretap Laws to Enhance Privacy*, 8 Alb. L.J. Sci. & Tech. 65, 109 (1997) (noting that the “telecommunications system” is comprised of a “network of networks” that includes wireless, wireline and internet services).

²⁶ Id.

the statutory requirements of Section 222, need to be considered in the Commission's review of the issues raised in the CTIA petition. The TruePosition system is designed to satisfy all of these demands.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Philip L. Verveer", written over a horizontal line.

Philip L. Verveer

David M. Don

Kelly N. McCollian*

WILLKIE FARR & GALLAGHER

Three Lafayette Centre

1155 21st Street, N.W.

Suite 600

Washington, D.C. 20036

(202) 328-8000

ATTORNEYS FOR TRUEPOSITION, INC.

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*Admitted in Virginia Only

Multiple Layers of Privacy

How it works:

1. TP collects radio signal at cell towers and converts it into location when tasked
2. TP delivers location records only to application providers authorized by users
3. Application provider receives location records and provides requested service

